



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,237	08/18/2003	Shinichi Sugimoto	914-171	3002

23117 7590 02/24/2004  
NIXON & VANDERHYE, PC  
1100 N GLEBE ROAD  
8TH FLOOR  
ARLINGTON, VA 22201-4714

EXAMINER

KOCH, GEORGE R

ART UNIT PAPER NUMBER

1734

DATE MAILED: 02/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

<b>Office Action Summary</b>	Application No. 10/642,237	Applicant(s) SUGIMOTO ET AL.	
	Examiner George R. Koch III	Art Unit 1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-11, 15 is/are rejected.
- 7) ☒ Claim(s) 12-14, 16, 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/865,726.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 12 is objected to because of the following informalities: Line 17 of claim 12 recites "the a regular bonding step". The word "the" should be deleted. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1734

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 9-11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida (US Patent 5,858,806) as applied above and further in view of Inaba (US 5,243,755), JP 11-54877 and Takeshita (US Patent 6,458,236 B2).

Nishiada discloses a method of bonding by thermocompression with use of a heater head a display board and a flexible printed circuit board (see, for example, Figures 13a-d) in such a way that a first terminal electrode row of the display board and the second terminal electrode row of the flexible printed circuit board are electrically connected. The process involves applying a generic load. Such a process appears to generically control a stretch amount of the second terminal electrode row.

While Nishida does disclose much of the structure needed to provide the capability of adjusting either the load change per unit time or the heater head driving speed, Nishida does not explicitly disclose a controller as the stretch amount controlling means for doing so or the step of wherein a load change per unit of time after said heater head starts compressing said flexible printed circuit as well as a time at which a required load is attained are controlled.

Inaba discloses a similar heated pressure head for bonding semiconductor components such as ink-jet heads wherein the controller structure (figure 32b) performs control steps by receiving inputs from the sensing means (cameras 40 and 42) and adjusts the pressing (i.e., x, y and z drivers 36a-f) in response to this input. Inaba discloses that the control unit includes programmability functions (via program disk 76) and stored data (via data disk 74). One in the art would appreciate that Nishida intends for any control step to be used and that Inaba discloses such a control step in the same field of operation (semiconductor manufacturing), and provides the capability of performing the control steps recited in Nishida. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the controller structures of Inaba in order to provide the control step capabilities suggested in Nishida.

Furthermore, Takeshita discloses that it is known in a heater head with heater driving means apparatus to include speed control device (see column 5, lines 22-28) along with the pressure load change capabilities (column 5, lines 51-65). Such an structure would improve control over the bonding operation, also reducing misalignment of mounting and bonding portion relative to each other. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have include the speed and load change capabilities of Takeshita via the controller and control steps of Inaba in the overall apparatus and method of Nishida with load change means in order to prevent misalignment of mounting and bonding portion relative to each other.

As to claim 10, Takeshita discloses the speed change capabilities and steps in the control structure, i.e., stabilizing the load change and the time at which the required load is attained.

As to claim 11, Nishida, Inaba and Takeshita combined would utilize a quantitative control step to control the load change and time at which the required load is attained. Such actions would be a quantitative control of the stretch amount.

As to claim 15, Inaba discloses controlling the speed of the heater head (see Figure 32b which shows control of the drivers.)

***Allowable Subject Matter***

6. Claims 12-14 and 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and to correct the claim objections noted above.

7. The following is a statement of reasons for the indication of allowable subject matter:

Applicants arguments in the parent application (Application 09/865,726 - see Response filed 05/21/2003, especially page 2, line 10, to page 3, line 2) that JP 11-54877 does not disclose, teach or suggest controlling stretch amounts are considered persuasive. Therefore, the prior art does not teach or disclose or suggest monitoring or calculating stretch amounts. (It is noted that in claims 9-11, and 15, there is no suggestion of monitoring stretch amounts. Instead, it appears that known control steps

- controlling the speed of the heater head or the load change - controls the stretch amounts).

With regard to claim 12 and 16, the prior art of record makes no disclosure of a stretch amount calculating step of calculating the stretch amount of the second terminal row based on information obtained from the relative position determining step and a correction amount calculating step for calculating a correction amount corresponding to a difference between the stretch amounts of the first terminal electrode row and the second terminal electrode row based on the stretch amount of the second terminal electrode row.

With regard to claims 13-14 and 17-18, the prior art of record makes no disclosure of a stretch amount calculating step of calculating the stretch amount of the second terminal row based on said displacement amount and a correction amount calculating step for calculating a correction amount corresponding to a difference between the stretch amounts of the first terminal electrode row and the second terminal electrode row based on the stretch amount of the second terminal electrode row., wherein quantitative control is performed by feeding back the correction amount.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and

Art Unit: 1734

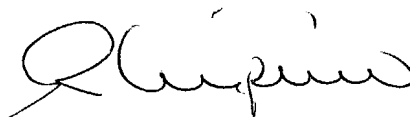
giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



George R. Koch III  
February 16, 2004



**RICHARD CRISPINO**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700